

CLAIMS

1. A method for charging a battery, comprising the steps of:
determining a charge termination point for the battery, wherein
the charge termination point produces a charge on the battery that is less
5 than an initial maximum charging capacity of the battery; and
charging the battery using the charge termination point for at
least a portion of the charge cycles of the battery to reduce at least in part the
variation of battery capacity over the cycle life of the battery.
- 10 2. The method according to claim 1, wherein the step of
determining a charge termination point for the battery comprises the steps of:
determining a number of charge cycles, an initial maximum
capacity of the battery and a target capacity of the battery;
determining a charge factor based on the number of charge
15 cycles; and
calculating a charge termination factor based on the charge
factor, the initial maximum capacity of the battery and the target capacity of
the battery, wherein the charge termination point is based on the charge
termination factor.
- 20 3. The method according to claim 1, wherein the charge
termination point is selected from at least one of a termination charge voltage
and a charge current termination point.

4. The method according to claim 2, further comprising the step of accessing the number of charge cycles, the initial maximum capacity of the battery and the target capacity of the battery from a memory of the battery.

5 5. The method according to claim 4, wherein the memory is an electrically erasable programmable read only memory.

6. The method according to claim 2, wherein the target capacity of the battery is selected based on at least one of a predetermined percentage
10 of transmission time, a predetermined percentage of receive time and a predetermined percentage of standby time, each of which is associated with a mobile communications device.

7. The method according to claim 2, further comprising the step of
15 incrementing the number of charge cycles each time the battery is charged to its charge termination factor.

8. A method of charging a battery, comprising the steps of:
- determining a number of charge cycles, an initial maximum capacity of the battery and a target capacity of the battery;
 - determining a charge factor based on the number of charge
 - 5 cycles;
 - calculating a charge termination factor based on the charge factor, the initial maximum capacity of the battery and the target capacity of the battery;
 - determining a charge termination point based on the charge
 - 10 termination factor; and
 - charging the battery using the charge termination point.

9. A system for charging a battery, comprising:

a battery; and

a charging unit having a processor, wherein the processor is
programmed to determine a charge termination point for the battery, wherein
5 the charge termination point produces a charge on the battery that is less
than an initial maximum charging capacity of the battery;

wherein the charging unit charges the battery using the charge
termination point for at least a portion of the charge cycles of the battery to
reduce at least in part the variation of battery capacity over the cycle life of
10 the battery.

10. The system according to claim 9, wherein the processor is
programmed to determine the charge termination point for the battery by:

determining a number of charge cycles, an initial maximum
15 capacity of the battery and a target capacity of the battery;

determining a charge factor based on the number of charge
cycles; and

calculating a charge termination factor based on the charge
factor, the initial maximum capacity of the battery and the target capacity of
20 the battery, wherein the charge termination point is based on the charge
termination factor.

11. The system according to claim 9, wherein the processor is further programmed to select the charge termination point from at least one of a termination charge voltage and a charge current termination point.

5 12. The system according to claim 10, wherein the battery comprises a memory and wherein the processor is further programmed to access the number of charge cycles, the initial maximum capacity of the battery and the target capacity of the battery from the memory of the battery.

10 13. The system according to claim 12, wherein the memory is an electrically erasable programmable read only memory.

 14. The system according to claim 10, wherein the target capacity of the battery is selected based on at least one of a predetermined percentage of transmission time, a predetermined percentage of receive time and a
15 predetermined percentage of standby time, each of which is associated with a mobile communications device.

 15. The system according to claim 10, wherein the processor is
20 further programmed to increment the number of charge cycles each time the battery is charged to its charge termination factor.

16. A battery for supplying power to an electronic device,
comprising:

at least one cell for receiving power from a charging unit; and
a memory, wherein when the battery is coupled to the charging
5 unit, a processor of the charging unit is programmed to determine a charge
termination point for the battery, wherein the charge termination point
produces a charge on the battery that is less than an initial maximum
charging capacity of the battery and wherein the charging unit charges the
battery using the charge termination point for at least a portion of the charge
10 cycles of the battery to reduce at least in part the variation of battery capacity
over the cycle life of the battery.

17. The battery according to claim 17, wherein the memory is an
electrically programmable read only memory that stores a number of charge
15 cycles, an initial maximum capacity and a target capacity of the battery and
wherein the processor accesses the number of charge cycles, the initial
maximum capacity and the target capacity of the battery to determine the
charge termination point.

18. A charging unit for charging a battery, comprising:
a charge control circuit for controlling charging current to the
battery; and
a processor, wherein the processor is programmed to determine
5 a charge termination point for the battery, wherein the charge termination
point produces a charge on the battery that is less than an initial maximum
charging capacity of the battery;
wherein the charging unit charges the battery using the charge
termination point for at least a portion of the charge cycles of the battery to
10 reduce at least in part the variation of battery capacity over the cycle life of
the battery.

19. The charging unit according to claim 18, wherein the processor
is programmed to determine the charge termination point for the battery by:
15 determining a number of charge cycles, an initial maximum
capacity of the battery and a target capacity of the battery;
determining a charge factor based on the number of charge
cycles; and
calculating a charge termination factor based on the charge
20 factor, the initial maximum capacity of the battery and the target capacity of
the battery, wherein the charge termination point is based on the charge
termination factor.